

ABSTRACT

Disclosed herein are siloxane-based resins prepared by hydrolyzing and polycondensing cyclic and/or cage-shape siloxane compounds, optionally with at least one silane compound, in an organic solvent in the presence of a catalyst and water. Also, disclosed herein are methods for forming insulating film between interconnect layers in semiconductor devices by using the siloxane-based resins thus prepared as low dielectric insulating materials.